



# Fluor Hanford – River Corridor Project



**Report from the DOE  
Voluntary Protection Program  
Onsite Review, October 15 - 19, 2001**



**U.S. Department of Energy**  
Office of Environment, Safety and Health  
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## Abbreviations and Acronyms

<b>AJHA</b>	Automated Job Hazard Analysis
<b>ALARA</b>	As Low As Reasonably Achievable
<b>BED</b>	Building Emergency Director
<b>BLS</b>	Bureau of Labor Statistics
<b>DOE</b>	U. S. Department of Energy
<b>DOE-HQ</b>	U. S. Department of Energy, Headquarters
<b>DOE-VPP</b>	Department of Energy’s Voluntary Protection Program
<b>EJTA</b>	Employee Job Task Analysis
<b>ES&amp;H</b>	Environment, Safety and Health
<b>ESH&amp;Q</b>	Environment, Safety, Health & Quality
<b>EZAC</b>	Employee Zero Accident Council
<b>FEB</b>	Facility Evaluation Board
<b>FY</b>	Fiscal Year
<b>HAMTC</b>	Hanford Atomic Metals Trade Council
<b>HEHF</b>	Hanford Environmental Health Foundation
<b>HGET</b>	Hanford General Employee Training
<b>ISM</b>	Integrated Safety Management
<b>ISMS</b>	Integrated Safety Management System
<b>JHA</b>	Job Hazard Analysis
<b>LO/TO</b>	Lockout/Tagout
<b>MSDS</b>	Material Safety Data Sheet
<b>NDTS</b>	Non-Deficiency Tracking System
<b>NFPA</b>	National Fire Protection Association
<b>OJT</b>	On-the-Job Training
<b>OSHA</b>	Occupational Safety and Health Administration
<b>PHMC</b>	Project Hanford Management Contract
<b>PIC</b>	Person in Charge

<b>PM</b>	Preventive Maintenance
<b>PPE</b>	Personal Protective Equipment
<b>PZAC</b>	President’s Zero Accident Council
<b>RCP</b>	River Corridor Project
<b>RWP</b>	Radiation Work Permit
<b>S&amp;H</b>	Safety and Health
<b>SIC</b>	Standard Industry Code
<b>SOE</b>	Stationary Operating Engineer
<b>VPP</b>	Voluntary Protection Program

## Executive Summary

The Department of Energy's Voluntary Protection Program (DOE-VPP) onsite review of the Fluor Hanford – River Corridor Project (RCP) was conducted from October 15 - 19, 2001 in Richland, Washington. Fluor Hanford has operated RCP for the Department of Energy (DOE) since 1999. The following summarizes the review team's observations and analyses.

### Management Leadership

The DOE-VPP Onsite Review Team (Team) found strong evidence that managers are committed to continually improving the safety and health (S&H) program. Management and employees have developed a cohesive relationship based on mutual respect and cooperation to ensure effective safety program implementation. The Team noted that senior management demonstrated a very strong commitment to worker protection, and programs are in place to hold management both responsible and accountable for maintaining a safe workplace. Managers, supervisors and employees, with the exception of bargaining unit employees, are given annual performance appraisals that evaluate their performance in the safety and health area. Top-level management is also held accountable for completing actions identified in the annual Safety Improvement Plan (SIP). The Hanford Atomic Metals Trade Council (HAMTC) Safety Representative Program has been effectively implemented at RCP, and ensures that management and craft employees work together to identify and correct safety issues.

### Employee Involvement

The Team found that employees are actively involved in the development and implementation of the site S&H program. Employee involvement not only occurs through participation in the safety meetings and training activities, but also through work planning, the safety inspection processes, the Employee Zero Accident Council (EZAC) and in completion of Job Hazard Analyses (JHAs). Employees indicated that they not only felt responsible for their own safety, but for the safety of their co-workers as well. The Team found during the interviews, that employees felt real ownership for the safety program as it applied to their work. Both managers and employees indicated strong support for the safety program, and employees stated that their management representatives set a good example in terms of following safety rules. Employees clearly demonstrated a strong sense of ownership and pride in the site S&H program. Most employees indicated that this is the safest place they had ever worked. It was noted that employees are not only involved in hazard recognition and job hazard analyses, but also in hazard resolution. In fact, if an employee raises a safety concern then he/she must sign-off indicating approval of the corrective action before the issue is closed.

One issue that surfaced was the fact that some employees working in Building 327 stated that in the past they were not allowed to participate in development of Automated Job

Hazard Analyses (AHJAs). Follow-up revealed that this issue was previously identified by the site and dealt with appropriately. In addition, employee perception interviews conducted from July 1997 through September 2001, and a review of JHAs conducted over the past year in Building 327, indicate that employees are effectively involved in identifying hazards associated with their work.

### **Worksite Analyses**

Worksite analysis processes at RCP effectively identify and characterize hazards so that they may be prevented or mitigated. Crafts, engineers, maintenance personnel and subject matter experts collaborate on JHAs to ensure a thorough analysis of system hazards. A baseline hazard analysis is completed for each facility assigned to RCP. Additionally, nuclear facilities assigned to RCP have an approved Safety Analysis Report, Authorization Envelope, and Authorization Agreement. Employee Job Task Analyses (EJTAs) are utilized to match employee with work tasks, and are reviewed by an industrial hygienist. Industrial hygienists also perform risk based monitoring and personal exposure monitoring in the workplace. Management, employees and S&H professionals are involved in conducting self-inspections, which include assessment of safety, health, fire protection, and emergency preparedness. In addition, the Facility Evaluation Board (FEB) conducts an independent assessment of RCP every other year. Employees are not only encouraged to report any unsafe conditions, but are an active team member in identifying a resolution. Accident investigation processes involve employees and result in an analysis to determine the root cause. Identified hazards are immediately addressed with appropriate corrective actions being taken in a timely manner. S&H performance and trending information is developed and reviewed monthly and utilized to target S&H program improvements.

### **Hazard Prevention and Control**

RCP maintains highly qualified S&H professionals, and also depends on other experts from across the Hanford site to complement their expertise. S&H rules have been documented and are known and understood by employees and managers. Hazards are controlled through use of engineering controls, work practice guidelines, and appropriate personal protective equipment (PPE). During the onsite review inconsistencies were found in implementation of the Lockout/Tagout (LO/TO) standard. This issue was previously noted by RCP, and a RCP representative has been designated by Fluor Hanford to lead a Hanford Site standardization of LO/TO. Ergonomic evaluations have been conducted to prevent occupational injuries and illnesses. The PPE program ensures that appropriate PPE is required only if hazards cannot otherwise be eliminated from the workplace. Employees indicated that they are provided with the necessary PPE to complete their jobs safely. RCP has implemented a comprehensive preventive maintenance (PM) program that uses a combination of preventive, predictive, and corrective maintenance to ensure the availability, operability, and reliability of plant structures, systems and components. The site has mature, well functioning emergency preparedness, radiation protection, and medical programs. One suggestion is that

employee and management should be better informed regarding the administration of external dose limits.

### **Safety and Health Training**

The Team noted from employee interviews and document reviews that employees understood the hazards involved in their jobs and received in-depth S&H training to facilitate safe job practices. On-the-job (OTJ) training is used extensively across the site, and employees are not expected to perform a job alone until they feel confident that they can complete it safely. Line management is responsible for identifying the training needs of their employees, based on the location and nature of an employees' job assignment. Formal hazard recognition training is provided for employees as well as months of classroom training on site procedures and processes.

Management clearly supports the S&H training programs as evidenced by employee interviews, funding levels, and documentation reviews. One noteworthy practice identified by the team was the use of iPIX technology, which allows facilities to be viewed remotely. This technology is used to allow employees and management to conduct planning and training without the risk of radiological or other occupational exposure.

### **Conclusion**

The Team concludes that the applicant has met and/or exceeded each of the five DOE-VPP tenets. Accordingly, our technical opinion as documented in this report will be presented to the DOE-VPP Program Administrator for consideration.



# I. Introduction

The DOE-VPP onsite review of the Fluor Hanford River Corridor Project (RCP) was conducted from October 15 - 19, 2001 in Richland, Washington. Fluor Hanford has operated the River Corridor Project for the DOE since 1999.

The River Corridor Project reports to the Richland Operations Office and the Office of Environmental Management.

RCP successfully completed its Integrated Safety Management System (ISMS) Phase II verification in FY2000 and was subject to an evaluation by Fluor Hanford's FEB in December 2000. RCP received a satisfactory rating for all areas assessed including occupational safety and health and training.

RCP was evaluated against the program requirements of the DOE-VPP. The On-site DOE-VPP Evaluation Team consisted of a diverse cross-section of individuals from the DOE Headquarters office, the Richland and Savannah River Operations Offices, Fernald Environmental Management Project, Fluor Federal Services/Richland, and the Bayou Choctaw Site. (See the Appendix for a roster of the DOE Onsite Review Team.) During their review, the Team walked through the facility, conducted formal and informal interviews, and conducted a limited review of documentation.

The Standard Industry Code (SIC) for RCP is #4953, Refuse Systems. Since the Bureau of Labor Statistics (BLS) does not publish data for this four-digit level industry, SIC 495 – Sanitary Services, data were used for comparison. The injury/illness rates reported by RCP show that they are below the known rates for comparable industries. Submitted rates meet the DOE-VPP criteria.

<b>Historical Occupational Injury and Illness Data</b>					
<b>RCP Employees (Only)</b>					
<b>Calendar Year</b>	<b>Hours Worked</b>	<b>Total Recordable Cases</b>	<b>Total Recordable Case Incidence Rate</b>	<b># of Lost and Restricted Workday Cases</b>	<b>Lost and Restricted Workday Case Incidence Rate</b>
1997	449,674	10	4.45	1	0.44
1998	520,320	8	3.08	4	1.54
1999	667,659	1	0.30	0	0.00
2000	773,061	4	1.03	0	0.00
<b>2001 *</b>	<b>563,213</b>	<b>4</b>	<b>1.4</b>	<b>0</b>	<b>0.00</b>
<b>1998-2000</b>	<b>653,680</b>	<b>4.33</b>	<b>1.32</b>	<b>1.33</b>	<b>.041</b>
	<i>Total hours</i>	<i>Total cases</i>	<i>3-yr Average</i>	<i>Total cases</i>	<i>3-yr Average</i>
<b>1999 Bureau of Labor Statistics rates for SIC 495</b>			<b>9.9</b>		<b>6.4</b>
<i>Sanitary Services</i>					

\*NOTE: 2001 figures are through the 3<sup>rd</sup> quarter. On 10/9/01 RCP had their first Lost Work Day in 3 years. At this point RCP was within 3 weeks of having 2 million safe hours worked.

RCP made their comparisons with data provided by the BLS. (Applicants are required to compare their injury/illness 3-year average rate to the most current published injury rates for that industry).

RCP injury and illness data is not reported directly to the DOE Computerized Accident/Incident Reporting System. RCP's data is reported and captured as part of Fluor Hanford's site-wide program. Injuries and illnesses at RCP are reported to Fluor Hanford's corporate manager by an RCP case manager and evaluated by the Hanford Environmental Health Foundation (HEHF), the site-wide health provider. Employees incurring a work-related injury or illness are required by procedure to report their injury or illness to line management as well as HEHF. This assures prompt medical and operational review of the employee's condition. Appropriate and timely treatment expedites employee recovery. RCP employees may self-treat minor injuries with the approval of their manager.

Case managers are responsible for activities related to each occupational injury and illness. They ensure prompt and appropriate medical attention for injured or ill employees. In working with affected employees, the teaming of managers and employees helps to broaden the perspective of incident investigations and resultant corrective actions. This clearly demonstrates that management is committed to the minimization and/or elimination of identified hazards. Routine assessments of safety performance is supported by a state-of-the-art web-based computer program that automates multiple activities, and facilitates continuous improvement through the sharing of lessons learned at Employee and President Accident Council meetings.

Investigations of injuries and illnesses involve at least the employee, their manager, and a safety professional. Frequently, additional personnel with specific expertise in factors related to the incident supplement this teaming effort, assuring a thorough investigation and a broad perspective in the identification of corrective actions. Management readily accepts responsibility for implementing measures that either control or eliminate the hazards involved with the related incident.

Safety performance is tracked and trended on at least a monthly basis, and adjustments are made where negative trends are identified. These adjustments include such items as additional training, and task redesign and/or physical changes to the work environment. Tracking of these trends is accomplished utilizing a web-based computer program specifically designed to perform multiple recordkeeping, management, and statistical functions. The program generates the U.S. Department of Labor's Occupational Safety and Health Administration (OSHA) 200 Log from data entered by the Project Case managers. It also generates the Computerized Accident Investigation Report (the OSHA 101 equivalent) required by DOE O 231.1, and a variety of statistical and narrative management reports. The Injury/Illness Recordkeeping and Reporting Coordinator was recently trained on the new OSHA 300 Log and reviewed proposed changes to DOE O 231.1.

Lessons learned identified during the investigation process are discussed with those involved and with those who could potentially benefit from lessons learned. Significant incidents are elevated to both the Employee and President Accident Councils to promote proactive implementation of corrective actions at other locations with similar conditions.



### **III. Management Commitment**

The level of management commitment found at this site meets DOE-VPP criteria. The sub-elements of this tenet and an evaluation of the applicant's performance in these areas are addressed and described below.

#### **VPP Commitment**

Management support and commitment are critical to the successful implementation of the DOE-VPP. In addition to a fully implemented ISMS, RCP management has implemented a number of mechanisms including development and implementation of an annual Safety Improvement Plan (SIP), conduct of Quarterly Management Assessments, strengthened Conduct of Operations, and implementation of the RCP Zero Accident Council (ZAC). These mechanisms work together to ensure that work is managed effectively, and recognized potentially hazardous situations are identified and mitigated.

Fluor corporate commitment is evident in their statement that "Fluor is known as one of the safest contractors in the world thanks to the outstanding safety focus of its members." Anything that poses a safety and health risk is unacceptable. During the review employees indicated they were aware of this position.

The River Corridor Project Safety and Health Policy states clearly that the RCP objective is to "Do Work Safely." It also identifies the protection of employees, the public and the environment as a primary core value.

RCP managers at every level are involved and show their commitment to worker safety by ensuring that employees are involved in the identification of the worksite hazards through inclusion in the AJHA program. An ISMS is in place that ensures that safety is an integral part of all site activities.

Management's involvement, participation, and visibility in safety are evidenced by their endorsement of staff members and worker's participation in workplace safety activities. Activities include participation in EZACs, development and implementation of annual SIPs, development and implementation of Facility Safety Logbooks, and effective implementation of the HAMTC Safety Representative Program.

Staff employees and management have performance criteria that include safety performance as a key element of their yearly performance appraisal, although collective bargaining employees are not included in the appraisal process. Employees at RCP may report a safety-related concern or issue without fear of reprisal or harassment for reporting the issue. Safety concerns are tracked to closure by Facility Managers and results are reported to employees at monthly All Hands meetings.

## Organization

RCP is organized to support its production-oriented role, with additional strong emphasis on safety, quality assurance, and radiological protection. Through review and observation of the processes in action, the Team believes that safety is well integrated into RCP's organizational design. RCP management has developed ZACs at all levels to ensure employee involvement in the safety program. The RCP Director of Environment, Safety and Health (ES&H) reports to the Vice President and provides expert ES&H services to RCP. S&H professionals provide direct support and frequently participate as team members on specific projects or work activities. Line management uses formal mechanisms and processes for collecting information on ES&H performance. Managers and first line supervisors include time in their schedules for walking through the facility and maintaining an open dialogue with employees.

**Noteworthy practice:** RCP management has effectively implemented the HAMTC Safety Representative Program to ensure that workplace S&H issues are identified and corrected in a timely manner.

## Responsibility

Top management is prominently involved in all elements of the S&H program, and is committed to the implementation ensuring its continuous improvement. The Vice President holds his direct reports responsible for effective implementation of the site S&H program through a number of mechanisms, to include performance appraisals and assignment of SIP actions. A Quarterly Management Assessment Program (MAP) ensures that managers conduct periodic formal workplace inspections, with managers assisting one another to ensure objective feedback.

RCP has clearly defined the roles, responsibilities, accountabilities, and authorities for performing the mission safely. Line managers and staff are responsible for conducting their activities in a safe manner, and are assisted by S&H professionals.

RCP uses position descriptions to describe responsibilities in terms of conducting work in a safe manner that ensures protection of employees, the public, and the environment. Staff performance appraisals are used to monitor and reinforce implementation and performance goals for safety.

RCP has established a strong safety culture that both management and employees share, a belief that *all* employees of RCP are both responsible and accountable for safety and health in the workplace.

## Accountability

Per the RCP Safety and Health Policy, management is committed to, “quality planning and execution of all activities that affect the safety and health of ...employees through the use of the Integrated Environment, Safety and Health Management System (ISMS).”

Management involves employees in the responsibility to carry out individual duties in a safe manner. Managers are held accountable for implementation of site S&H programs through performance appraisals and tracking of SIP Action Items. The company has a formal written performance appraisal system with S&H responsibilities as a critical element for management personnel.

The annual performance appraisals are a key method used by the site to hold employees, including managers and supervisors, accountable for their performance. The annual performance reviews, which are conducted for all employees except for bargaining unit employees, consider S&H performance as a major element of the review. Management has developed a policy that addresses disciplinary action(s) for violations of rules, policy, and requirements, thereby ensuring day-to-day accountability on the job. Accountability is regularly communicated to employees through staff meetings, safety meetings, training, site publications, and annual performance appraisals. Subcontractors are expected to follow RCP S&H requirements; they are held accountable for meeting these requirements through formal contractual agreements, and through the implementation of formal policies, procedures and directions. Failure to comply with these requirements and/or continued non-compliance can result in dismissal from the work site.

### **Authority and Resources**

All employees are responsible for safety. Site employees have Stop Work authority, and safety issues that they have raised must be addressed to their satisfaction prior to resumption of work. Employees who were interviewed were aware of this authority, and indicated a feeling of responsibility for the safety of themselves as well as their co-workers. Employees also indicated that they feel comfortable stopping work when they observe serious safety hazards, and those who had utilized this authority in the past were completely satisfied with actions taken by management to address their concerns.

The total budget devoted to the site S&H program is \$58.583 million for FY 2001, which represents approximately 18% of the total budget identified in the work breakdown structure. RCP facility-specific support provided under this budget includes emergency preparedness, fire protection, industrial safety, industrial hygiene, occupational medicine, nuclear safety, radiation protection, transportation safety, and management oversight. The funding covers salaries, materials and equipment, purchased services, attendance at safety conferences and workshops, and special training for employees.

Employees who were interviewed indicated that they receive personal protective equipment and training necessary to complete their work safely.

### **Planning**

The need to build S&H into projects is well ingrained into RCP's work planning process. The overall objective for RCP's jobs is to "do work safely," by reducing risks to the worker, the public, and the environment. S&H professionals are included in the development of activity baselines to ensure adequate consideration to S&H. SIPs are

developed annually, utilizing a team consisting of both management and employee representatives. Sources of input for the SIP include: Facility Evaluation Reports; results of employee interviews; lessons learned; and results of accident investigations. Employees are also involved in job planning through mock-ups and completion of AJHAs. Supervision involves employees who will be performing the job in the development of AJHAs to capitalize on the experience of seasoned workers to identify job hazards.

### **Subcontractor Program**

Subcontractors must pre-qualify, based on past S&H performance, before a contract is approved. Specific S&H requirements are identified in their contracts and RCP line personnel are responsible for ensuring compliance with these requirements. RCP-PRO-017, *Subcontractor Safety and Health Oversight*, requires workplace inspections of subcontractor activities on a regular basis to ensure effective implementation of applicable S&H requirements. In addition, subcontractors who will be on site for 45 days or more must complete Hanford General Employee Training (HGET) as well as a facility specific orientation. These training courses provide them with specific information on site S&H rules, as well as security and emergency preparedness.

The management personnel interviewed during the course of this onsite evaluation who had a responsibility either for planning, supervising or working along with subcontractors indicated that subcontractors were expected to follow RCP S&H requirements, and were held accountable for meeting these requirements.

### **Program Evaluation**

The FEB, which is Fluor Hanford's independent assessment group, adopted VPP criteria as part of their safety evaluation. The FEB last conducted an assessment of RCP during December 2000. The scope of this review fulfilled the independent assessment requirements of the ISMS implementation and validated elements of RCP's VPP. VPP self-assessments were conducted in 1998 and 2001. These assessments indicated that RCP has an effective S&H program. Also, the 2001 VPP self-assessment validated improvements that had been made since the 1998 assessment. Management conducts quarterly assessments per RCP-PRO-003, *Management Assessment Program*. The purpose of these assessments is to identify safety issues and improvement opportunities. RCP also surveys employees to determine their perspective on the health of the S&H program. Responses received on the latest survey indicate that employees feel that the S&H program is continuing to improve. Employees interviewed indicated that they believe the MAP is a good thing, and is used effectively to improve workplace conditions. Feedback from these program evaluation methods is factored into the development of the annual SIP.

## **Site Orientation**

Employees, subcontractors and visitors to the RCP receive a formal site orientation. This includes information on the RCP safety and health policy, Stop Work authority, warning signals, emergency preparedness procedures, employee rights and responsibilities, and worker involvement. Employees are also given appropriate S&H training and specialized training based on their security clearance, access and specific work assignment.

## **Management Visibility**

Top-level management is clearly visible and actively participates in the S&H program. RCP management regularly participates in various S&H meetings and activities. They are involved in ZACs at the site, project and facility level. They also conduct All Hands meetings at which they update employees on the actions taken to address identified safety concerns, as well as the status of SIP actions.

Managers are held accountable for their S&H responsibilities and maintain a policy of accessibility with regard to S&H issues that arise in the workplace. An “open door” policy ensures that any employee, at any time, can express an S&H concern to any level of management. One example mentioned to the review team involved a Radiological Chemical Technician (RCT) reporting a perceived safety problem directly to the RCP Vice President. The RCP Vice President accompanied the RCT to the work area and resolved the issue. In addition, employee’s who were interviewed indicated that they feel comfortable raising S&H issues at any level of management. They also noted, however, that supervisors generally address their concerns in a timely manner, negating the need to involve upper management or invoke Stop Work authority. Employees indicated that they see management in the field on a regular basis and that management sets a good example in terms of following safety and health rules.

Managers conduct informal inspections of the workplace on a regular basis and conduct formal assessments on a quarterly basis.

## **Conclusion**

Management leadership is clearly demonstrated by continuing improvement of S&H programs at this site. Emphasis on an effective partnership between management and employees has resulted in a safer and more productive workplace that values employee input. RCP meets the requirements for the management commitment tenet.



## IV. EMPLOYEE INVOLVEMENT

The onsite review clearly showed that employees are pro-actively involved in S&H programs. In addition, a review of program documents and the results of interviews showed that management has empowered employees to proactively administer the S&H programs at this site. The degree of employee involvement in S&H found during the review meets the DOE-VPP criteria for employee involvement.

### **Degree and Manner of Involvement**

The information gathered by the VPP onsite review Team, from field observations and from formal and informal employee interviews indicates a positive safety culture on the RCP. The review of documentation, and formal interviews indicate that there is a pro-active atmosphere on the part of management to ensure that employees have a voice in site safety programs. This employee involvement is demonstrated by active participation in the AJHA evaluation of work performed at RCP. This process incorporates the concepts of ISM as well as the tenets of VPP. Employees from all interested disciplines meet to discuss the work; identify work requirements or potential problems; and finalize the AJHA. Several AJHA meetings may be held, depending on the complexity of the tasks. A pre-job briefing is held on the day of the work execution to ensure employees understand the work, the hazards and the expectations. Another example of employee involvement is the Safety Ideas/ Issues Program where employees identify safety concerns that are tracked until closure. Employees indicate that they generally receive positive input from management and that management walks the talk from a “safety first” perspective.

The total number of employees is approximately 291, and formal and informal interviews were performed with approximately 47% of the work workforce. Formal employee interviews were conducted with individuals who were randomly selected from a list that was provided by RCP. Informal interviews were conducted with employees during the walk-through of work areas at various site locations. Most of the interviewed employees have worked at RCP or with associated work on the Hanford site for greater than 15 years. The institutional knowledge inherent in such a well-developed organization was apparent. These factors contributed to a mature safety attitude.

Generally, workers were candid and indicated their safety concerns are heard and acted upon. Employees indicated that they understood their rights and responsibilities, and are very knowledgeable about their rights and responsibilities regarding S&H, particularly their Stop Work authority. Workers and supervisors described instances where work was stopped or curtailed until a safety issue was resolved. Interviews confirmed that a strong safety culture exists at all levels, and employees feel empowered to voice safety concerns. The Facility Safety Logbooks provide an opportunity for RCP employees to express concerns, review status of corrective actions and review inputs from colleagues. These logbooks are maintained in an easily accessible location in the workplace. Also,

management briefs employees during monthly All Hands meetings regarding the status of identified safety concerns.

Employee involvement in Building 327 work activities has increased significantly in recent months. Based on employee interviews, it appears that employee involvement in work planning and the AJHA process was previously limited, due to the number of workers available to perform the work. RCP management recognized this issue a couple of years ago, and instituted effective corrective actions to ensure that employees were afforded the opportunity to be involved in the hazard identification and control process. The team agreed that the site has implemented a program that ensures employee involvement. Recent management changes have resulted in a reemphasis on safety first and worker involvement. To allow more input to the work planning process, the performance of some work tasks are delayed to allow the limited workforce to participate in planning. The PIC (Person In-Charge) at Building 327 was noted as an excellent team player/builder and integrator of safety suggestions. Also, following the onsite review, RCP personnel provided additional information regarding perception surveys completed by Building 327 personnel. Results of these surveys indicate that employee involvement has steadily increased from 1997 until September 2001, with most employees either agreeing or strongly agreeing that they are involved in JHAs as well as the S&H program overall. Also, a review of AJHA involvement data indicates that employees are being effectively involved in the AJHA process.

Most employees were familiar with RCP's efforts to continually improve safety programs. They understood that the pursuit of VPP recognition was part of the RCP's ongoing efforts to keep the program moving forward. Most employees interviewed were highly knowledgeable regarding their rights to request reports of inspections; accident investigation; and injury and illness records. Employees stated that they were given timely and complete written and/or oral feedback to S&H questions and issues.

Overall, it was clear that the work force has enthusiastically welcomed the opportunity for increased participation in assuring their abilities to perform work safely. When asked how the VPP process has impacted their work, most employees interviewed responded that their awareness level has increased, and their recognition of how their work may impact the safety others has also been heightened. Notably, RCP employees indicated that the Company's VPP efforts have kept safety in the forefront. Many workers indicated that the VPP effort has moved the RCP's programs to a higher level.

RCP employees made the following comments during onsite interviews:

“Employees speak highly of the safety programs at RCP.”

“The EZAC Committee follows up on employee concerns.”

“Our support is vital in safety issues.”

“Workers are in charge of safety instead of management.”

“Employee feels he or she can call a STOP WORK when he or she feels there is safety issue that comes up at that time.”

“Management is very open to employee’s ideas.”

“Union stewards deliver safety issues to upper management and usually get satisfactory responses from management.”

REPETITIVE COMMENT: “Crafts have a say in procedure steps.”

“VPP is not the flavor of the month.”

“Management has an open pocket book when it comes to safety.”

“Safety is a way of life at Hanford.”

“Safety is always number one – period.”

“My safety is my responsibility.”

“People themselves have to do the work safely. They’re the ones that make the safety program. People put it into practice.”

“The RCP safety program is above others I’ve seen. I know I’ll go home in the same condition that I came to work.”

“Our number one product around here is safety.”

### **Safety and Health Committees**

Programs that are employee oriented and support the VPP Employee Involvement tenet include:

- RCP-Hanford Atomic Metals Trade Council (HAMTC) RCP Safety Committee
- VPP Steering Committee
- President’s Zero Accident Council & Employee Zero Accident Council
- As Low As Reasonably Achievable (ALARA)/Pollution Prevention Committee

- Safety First Program
- Monthly Safety Meetings
- Automated Job Hazard Analysis Program

The RCP has also spread the word through posters; emails; bulletin boards; safety meetings; All Hands meeting; and other oral communication. All meetings are opened with a safety message. Employees feel they own the committees and that management participates in the committees, but the employees have the ownership

Workers generally indicated that they have input into the procedures for the work being performed. Many of them are involved in the development process, and others have input after the development, but always prior to implementation and use. Employees were confident and enthusiastic and feel they are part of the work development process at this site. RCP is starting to incorporate more employee involvement in the development of new training, coordinating with other craft and also in the actual writing of the lesson plan.

Employees are involved in the formal and informal reporting of hazards. They have Stop Work authority, and feel comfortable and confident with it. They have input into systems and procedures for incentive programs, as well as the disciplinary procedures as they relate to S&H issues. The RCP HAMTC Bargaining Unit Safety Representative is responsible for assisting bargaining unit staff members with resolving their safety-related concerns, or any staff concern related to ES&H issues. It is up to the manager to ensure that the employee is familiar and understands the disciplinary procedures as they relate to S&H issues. In the interviews conducted, employees were knowledgeable of these procedures.

**Noteworthy Practice:** Employees are involved in the reporting (formal and informal) of hazards, have Stop Work authority, and have input into systems and procedures for incentive programs, as well as disciplinary procedures as they relate to S&H issues. Awards are given to employees who report hazards or develop innovative solutions.

The primary ALARA Committee for Area 300 addresses ALARA concerns/issues and also recognizes outstanding ALARA performance. A 300 Area Team was recognized for their integrity and work on moving the crippled A/D crane in the airlock, away from A-Cell crane door, to enable staff to close A-Cell crane door. This Team received the Prime Hanford Management Contractors 3<sup>rd</sup> Quarter ALARA Award for September. The 300 Area ALARA Committee also recognized this site wide award in October 2001.

## Conclusion

Employee involvement is very strong in the RCP project workplace, and it appears that with management's involvement and commitment, employees have input to job planning;

identification and correction of safety hazards; and development of procedures. With total safety involvement from both the management and employee standpoint's it would seem that RCP is in good hands. RCP meets the requirements for the employee involvement tenet. Management appropriately addressed employee involvement issues that were identified in the past in Building 327 and employees are now being effectively involved in work planning and hazard control.



## V. Worksite Analysis

The onsite review clearly showed that RCP meets the requirements for worksite analysis found in the DOE-VPP criteria. The sub-elements of Worksite Analysis program at this site are described below.

The worksite analysis processes at RCP are structured and implemented to adequately control hazards to the workers, the environment, and the public. Formal worksite analysis processes for control of operations and maintenance, and the mitigation of hazards or potential hazards are in place. Personnel interviewed during this review and observations made by the Team confirmed that these processes are used and understood by the workers. Hazard analysis processes incorporate such tools as the AJHA system, JHAs, and require walkthroughs by all crafts, engineers, maintenance personnel, and subject matter experts deemed necessary to ensure a safe and functional work evolution is structured prior to commencing work.

### **Pre-use/Pre-startup Analysis**

Each facility assigned to RCP has completed a Baseline Hazard Assessment. Prior to any new design or modification of systems or processes at RCP, a hazard and accident analysis is completed which documents the defined processes, specifies requirements, lists specific types of hazards and mitigation during design, and ranks categories of hazards. Safety and engineering professionals review the design criteria and provide comments and resolutions. These are tracked to completion on any new design or modification to systems and processes. Based on the risk and complexity of a task, every work group involved in an activity may participate in the AJHA. Employees are involved in pre-start-up analyses using the AJHA, and in developing operating procedures for new equipment. In addition, the RCP Work Management Process provides a mechanism to review and change facilities and work. Applicable RCP Facility Safety Analysis Reports are updated annually and for major modifications.

Each RCP facility also uses administrative procedures to provide facility specific implementation information and requirements. RCP assigned nuclear facilities (all of the major facilities on-site) have an approved SAR, authorization envelope, and Authorization Agreement. Requirements for industrial and/or radiological facilities are also provided in accordance with standard practices and procedures. A graded approach employed for the required level of analysis and documentation for a given facility is consistent with:

- The complexity of the facility and/or systems,
- the hazard classification of the facility,
- the magnitude of the hazards, and
- the stage of the facility life cycle.

The Team observed a Plan of the Day Meeting and other Planning and AJHA development evolutions. Effective interaction between engineers, PICs, crafts, and supervisors were witnessed during these meetings. Employees confirmed that they are involved in pre-work/startup analyses, and believe that their involvement is appreciated and contributes significantly to the development of safe work practices. As a result, employees have a greater sense of ownership, thus their level of participation has increased.

### **Comprehensive Surveys**

Each facility has completed a Baseline Hazard Assessment. EJTAs are conducted to match employees with work and is reviewed by industrial hygienists. The EJTA is renewed and updated periodically or whenever the individual has a change in his/her potential exposures or routine scope of work. Each employee is afforded the opportunity to review and discuss the content of the EJTA with the appropriate manager.

Risk-based monitoring and personal exposure monitoring also complement the survey program. Shift, daily, monthly, quarterly, and annual radiological surveys/monitoring are also conducted. The industrial S&H staff performs routine inspections of all facilities.

Much of the RCP work involves accepting the turnover of facilities in the 200 and 300 areas for the Accelerated Deactivation Project that include unknown pre-existing conditions. Teams of specially trained and experienced technical personnel, as well as bargaining unit employees participate in carefully planned and executed surveys to ascertain the characterization of these facilities.

### **Self-Inspections**

S&H professionals, line managers, and employees are involved in self-inspections, which include S&H, fire, and respiratory protection program procedures. In addition, they conduct facility surveillances, operations inspections, shift surveillance inspections and employee-based inspections. Depending on the type of deficiency discovered and the type of self-inspection, deficiencies are tracked using either surveillance data sheets, log books, maintenance work packages, the facility tracking database or the Project Hanford Management Contract (PHMC) Deficiency Tracking System.

In addition, the high level Fluor-sponsored FEB schedules a comprehensive review of RCP every other year. The scope of the first FEB review, conducted from December 4-15, 2000, fulfilled the independent assessment requirements of the ISMS implementation and confirmed elements of RCP's Voluntary Protection Program. Other RCP facilities were reviewed in the past, but these were not considered comparable to the present RCP. All assessment areas were evaluated as GREEN, including the overall evaluation, with the exception of certain Maintenance-related activity that was found to be YELLOW. Many of the "areas requiring improvement" had already been reported by RCP personnel and are included in several RCP improvement initiatives.

There are formal schedules for assessments, at least annually, that meet or exceed requirements. There is also an established surveillance schedule for safety systems that is established and prioritized by engineering.

**Noteworthy practice:** As noted by the FEB and verified by the team, the RCP has an established MAP with an impressive manager participation ratio. Managers assist each other in conducting reviews of their facilities in order to get a fresh perspective. Also, the Conduct of Operations Champion program (individuals are assigned to each chapter) is considered an RCP strength.

### **Routine Hazard Analysis**

All work is planned and analyzed before activities begin. The team verified that work tasks are routinely reviewed to identify hazards and determine safe work practices. This can be accomplished by using the AJHA tool, or by direct equipment inspection, procedure validation walk-downs, and/or safe condition checks. Employees are involved in the pre-job planning, which includes the assessment of hazards. Safety professionals are included in the process when needed.

A JHA following the requirements in HNF-PRO-079, *Job Hazard Analysis* is completed for all jobs using a graded approach. The JHA is used during the work planning process for identifying, evaluating, controlling, and communicating potential hazards and environmental impacts associated with routine, non-routine, and skill-of-the-craft work. One strength of the program lies in the fact that anyone may Stop Work if something is not right.

During a JHA review, the work team discusses options to improve the work site, place shielding for dose reduction, or work more efficiently to minimize worker exposure. The RCP uses the AJHA to identify potential hazards before work begins. A goal of the process is to ensure that those involved with the planning also do the actual work. Radiological hazard controls are incorporated using HNF-5173, *PHMC Radiological Control Manual*. The scope of hazard analyses activities appears to be thorough across the site.

### **Employee Reporting of Hazards**

RCP promotes open, two-way communication to facilitate resolution of employee S&H issues and concerns. Employees are free to use verbal or written means to report S&H issues. Issues that are brought up in safety meetings and cannot be resolved immediately are tracked to resolution in safety meeting minutes.

The “Stop Work Responsibility” policy establishes employee responsibility and authority to stop work immediately, without fear of reprisal, when a situation exists that places themselves, their coworkers, or the environment in danger. This has been communicated to employees verbally, in letters from the RCP Project managers, and in the HGET. It is

also posted in facilities to remind employees of their rights and responsibility to stop work when they deem it necessary.

Operators and craft personnel routinely report hazards to supervisors, write them up in a “Safety Log Book” or bring them to the attention of stewards or Accident Council representatives for corrective actions. Regardless of the vehicle used for notification, RCP management prides itself on rapid response (often in writing) and follow-up of actions to resolve each report. Corrective actions are normally tracked to completion in a Non-Deficiency Tracking System (NDTS) and/or appear in the minutes of safety or EZAC meeting minutes. At the 324 facility, reports identified as EZAC actions are permitted to occupy 2 places on the weekly “Top 10” list of Engineering Priorities for resolution.

Employee interviews confirmed that they are fully aware of how to report hazards. While there are formal mechanisms for reporting hazards, most employees feel comfortable reporting hazards to their supervisors, expecting that hazards will be corrected almost immediately. Employees feel they can report hazards to any level of RCP management without fear of reprisal.

**Noteworthy practice:** RCP supports an “I Saw a Safe Act” program wherein anyone witnessing a praiseworthy activity can nominate another for recognition. On a periodic basis (usually monthly) one or more of the nominees – depending on individually designed facility preferences – are singled out for recognition and given an award of some kind. It is believed that this is a moral-boosting promotional practice.

In one facility all of the Safety Acts for a given month are put into a box and one is pulled randomly for recognition. This random selection normalizes all the safety inputs and prevents the same individual/group from always being recognized for their Safety Act just because of the significance of a given activity.

### **Accident Investigations**

RCP personnel are required and encouraged to promptly report and investigate work-related events, including incidents involving property/vehicle damage, accidents involving injuries/illness, and near misses. Line managers determine the extent and type of accident investigation required. RCP offers accident investigation training to employees and managers and has staff members who are certified DOE Accident Investigators. Bargaining unit employees assist in training development and conducting training sessions. Employees are encouraged to participate as part of the team during investigations.

Lessons learned are sent to the Hanford Site Lessons Learned Coordinator for distribution. Informal lessons learned are shared within the RCP Project safety contacts. Any actions are entered into the tracking system and tracked to completion.

Injuries reported to date this calendar year were properly investigated. First aid cases as well as recordable cases are investigated and recorded on Event Report (Project Hanford Form A-6001-714) forms. The form provides a mechanism for the injured employee, immediate supervisor, and an Industrial Safety and Health professional to investigate and record how the incident occurred, and what can be done to prevent recurrence. A Lost Workday Case, the first in nearly 3 years, was reported while the Team was on-site. It was investigated promptly, discussed with EZAC members, and presented at the monthly meeting of the President's Zero Accident Council (PZAC). This regularly scheduled meeting of all Fluor projects, not just RCP, also coincided with the Team's visit.

### **Trend Analysis**

Safety and Health performance and trending data are available to both management and employees and are used as the basis to modify, change, or establish safety processes. RCP ES&H staff perform a broad-based, comprehensive trend analysis on a routine basis. Monthly collections of fifteen indicators of RCP performance are used to monitor processes related to hazard reduction. Indicators include project safety rates, safety improvement plan performance, personnel radiation exposure by job task, preventive maintenance backlog, and corrective action risk ranking. A monthly trend analysis report captures injury and illness to date and is issued to management and members of the Safety councils. The information is shared with other groups at RCP. Annually, Environment, Safety, Health & Quality (ESH&Q) staff analyzes trend event reports, motor vehicle accident causes, and violation data to communicate to employee's weaknesses and desired improvements. Radiological trend analyses are used to develop improvement strategies and annual ALARA goals.

RCP formally trends injuries, illnesses, fire damage, vehicle damage, preventive maintenance backlog, and corrective action risk rankings. There is also some informal trending of Occurrence Reporting and Processing System reports and other information gathered by safety professionals. Trending charts are made available to employees. Charts are posted, for example, in facility lobby and 'break' areas. Such reports are disseminated to provide employee feedback and communicate areas earmarked for improvement. Performance indicators are reviewed at monthly program review meetings.

### **Conclusion**

Worksite analysis is an important element of everyday work at RCP. It is so ingrained into the culture that safety analyses are the first considerations for any planned work or operations tasks. RCP meets the requirements for the worksite analysis tenet.



## VI. Hazard Prevention and Control

The level and complexity of the hazard prevention and control program found at this site meet DOE-VPP criteria. Sub-elements of this tenet are addressed and described below.

### Access to Certified Professionals

RCP has chosen to maintain a highly qualified S&H staff to meet the needs of their projects and assigned facilities. Personnel in the Industrial Hygiene, Occupational Safety, Fire Protection, and Radiological Control organizations have the education, training, experience, and professional certifications to provide “world class” support to facility personnel. Currently RCP receives industrial hygiene support from Fluor Hanford, but they are in the process of hiring an Industrial Hygienist to provide full time support. The staff includes a Certified Industrial Hygienist, Certified Safety Professionals, radiation protection technologists, and qualified fire protection engineers. Communication from this extensive staff of technical experts to the employees is encouraged and supported through various mechanisms, to include:

- Meetings to discuss new regulations, technology, concerns, and other site issues,
- Examination of site electrical issues by the Hanford Workplace Electrical Safety Board,
- Establishing Center’s of Expertise, to include, OS&H, Radiological Control, and Nuclear Safety, and
- Locating technical experts near the work.

RCP depends on services available at the Hanford site to complement their expertise. The Hanford Site maintains trained and qualified medical, fire department, and emergency response personnel and services. The Hanford Occupational Medical contractor, the HEHF, provides occupational medical personnel. HEHF has assigned a physician to work with RCP employees. The physician and physician assistants regularly tour RCP facilities, are familiar with the day-to-day scope of work, and understand the different needs of employees. The medical staff works very closely with RCP safety specialists to ensure that workers are receiving appropriate care. Periodic meetings are held to discuss new regulations, technologies, concerns, or other site-wide issues.

Under the direction of HEHF’s three board-certified occupational health physicians, five physician’s assistants, numerous nurses, and other skilled medical related specialists provide a wide range of services to RCP employees. Services include case management, ergonomics assessments, exercise physiology, fitness for duty evaluations, health education, immediate health care, infection control, medical surveillance, occupational

medicine and nursing, psychology and counseling, and work suitability evaluations. They are encouraged to perform at least 12 site visits a year and to become more knowledgeable about field operations and potential medical risk factors. Their hazards-based program focuses on key elements such as risk factors related to workplace exposures and target organs.

Communication from this extensive staff of technical experts to the employees is encouraged and supported by a number of processes and policies.

## **Methods of Prevention and Control**

Hazards at this site are controlled using engineering controls, PPE, and work practice guidelines. These controls are reviewed and only need updating on an infrequent basis, as they are well characterized. Site safety rules, safe work practices, and PPE usage was found to meet requirements. The site currently maintains Material Safety Data Sheets (MSDS) in a central location at each major RCP facility for site-wide access. RCP has strengthened their process for ensuring that MSDS files are protected, complete, current and readily available at the workplace. The field does have ready access to MSDSs and understand the MSDS program. Some employees, through interviews, indicated that the two different labels (National Fire Protection Association (NFPA) 704 and Hanford labels) within each facility are confusing. The facility has a diamond (NFPA 704) at the entrance and within the facility a rectangular label is used for secondary containers.

During the onsite review it was determined that the 29 CFR 1910.147 Lockout/Tagout standard was not violated, but inconsistencies among procedures causes confusion for the employees. When asked about LO/TO, control measures and the terminology within the program confused several employees. RCP has identified that the LO/TO program needs to be reviewed and upgraded to eliminate administrative weaknesses and inconsistencies. Consideration is being given to two separate programs, one for personnel protection and another for facility configuration. A RCP person has been designated by Fluor Hanford to lead a Hanford Site standardization of LO/TO.

RCP realized that Ergonomic related problems were a major part of occupational injuries & illnesses: therefore, they evaluated all employees' workstations and desk areas. They also had HEHF personnel evaluate some work processes. Corrections were made as needed.

About two years ago RCP successfully established a working team, composed of workers of multi-disciplines, whose purpose is to walkdown, troubleshoot, and repair identified system/equipment problems in a timely manner, to support facility operations. The team consists of a Lead, a Stationary Operating Engineer (SOE), and four craft persons (Pipefitter, Electrician, Instrument Technician, and Millwright). Ownership and teamwork are demonstrated, particularly in using craft-alignment to share work among bargaining units. The team is unique and promotes rapid decision-making and approvals.

After interviewing members and observing the team, it is evident that the SOE is an integral part of team success. Project Engineers and Operations use the Lead, SOE, and craft people daily for troubleshooting, AJHA, ISMS walkdowns, and consulting. This readily available resource has relieved a large emergent workload from the rest of the Maintenance teams. The Project Team has matured and adapted to the needs of the facility.

RCP has the mission to receive a building or facility and decontaminate it to a condition where it can be turned over for Decontamination/Decommissioning. The facilities and projects, with associated risks identified, are transitioned to RCP from a DOE Prime Contractor. RCP receives the facility and cleans it to a safe state, then turns it over for decontamination and decommissioning by another DOE Prime Contractor. RCP's work is considered some of the most hazardous at Hanford. As part of the pre-job program they frequently do mock-ups to ensure workers are familiar with the job and aware of the hazards associated with the job.

Employees who have safety issues or concerns can report them to their manager for swift resolution or they may enter them in the Facility Safety Logbook. When they are entered in the safety logbook the Facility Manager reads and takes prompt corrective action. At monthly All Hands meetings, employees are briefed on safety issues that were identified during the preceding month, as well as corrective actions taken to address these concerns.

### **Safety and Health Rules**

Rules and expectations have been clearly laid out for workers and managers and are reinforced in various ways, such as HGET and RCP ZAC meetings. RCP employees receive positive reinforcement, as well as discipline when necessary. For example, employees who are observed acting safely are eligible for an award. Some facilities within RCP give an award to everyone "caught" working safely, while other facilities hold a drawing periodically to select an employee to reward. Management, in some fashion, recognizes all employees who are observed working safely.

Senior managers have the responsibility for establishing and enforcing the disciplinary policy. Violations of S&H procedures, activities or standards can result in disciplinary action, up to and including dismissal. There were recent examples of both days off work without pay for violating S&H rules, as well as termination of employment for a major violation of S&H rules. Interviewed employees stated that they were well aware of what happened and the disciplinary actions taken; they stated that the terminations were justified and that the days away from work without pay were fair when invoked.

The RCP various facilities or projects select "Employee of the Month or Quarter." RCP has two internal safety councils: they are the "RCP ZAC and the facility EZAC". Each council consists of equal voting membership from management and the bargaining unit. They provide recognition processes for rewarding outstanding safety support. Employees nominate their peers. All-Hands meetings, All-Employee meetings and Facility Safety Days are events where employees receive certificates, pins, hats, and other items for

safety achievements. In addition, the Accident Council also works several other S&H issues.

Overall, the Team found that site S&H rules are well documented, and are applied to subcontractor employees as well as RCP employees. Interviews with employees indicated that they knew and understood the disciplinary process should these rules not be adhered to. Those interviewed felt this process was both fair and consistent, and gave examples of positive reinforcement received from supervisors and management for good work practices.

RCP has NO open health and safety related issues in the areas of Price-Anderson Amendment Act, Legal, Labor, or that are unresolved in the legal process.

RCP has Health and Safety identified in employee's yearly performance appraisal evaluation process; however, bargaining unit employees are not included in the yearly evaluation.

### **Personal Protective Equipment**

The site policy is to provide the necessary PPE required, thus protecting workers from hazards that cannot be otherwise eliminated or avoided by engineering or administrative controls. Many types of equipment are made available, including gloves, boots, safety glasses, hearing protection, and respirators. Employees must receive training and appropriate medical evaluation before being permitted to use PPE. Training includes information about the maintenance, care, inspection, storage, disposal, and use of PPE. Where PPE is utilized, instruction for its use is integrated into task-specific procedures. Areas throughout the RCP (such as the maintenance shop) were properly posted to inform employees of required PPE based on potential hazards. Appropriate PPE was made available for visitors.

However, RCP is the only contractor at Hanford that uses a "Bubble Suit" (Airline Supplied Double Bibbed Plastic Hood) with double bibbed and plastic bottoms. The respiratory protection hood is NIOSH approved as well as respiratory protection used by RCP. This respiratory protection is used only in the 324 Facility, air-lock area. Personnel assigned to use the suit are well trained and follow the procedure. Employees are not allowed to use the suit until they are fully trained. RCP employees find the suit to be comfortable. Based on an evaluation provided by Los Alamos National Laboratory, use of the suit has been approved by DOE HQ.

**Noteworthy Practice:** RCP's use of the supplied air hood has been extensive and as result the employees indicated their high acceptance. They have had no uptakes or inhalation of toxic or radioactive materials. They have had no direct skin contaminations and the only contamination that has been found was on the inner pair of coveralls from the disrobing process while using these hoods. Employees are cut out of the hood and pants by co-workers as they leave radiological areas. The assessment team observed a demonstration utilizing the bubble suit and determined that use of this suit reduces

employee exposures while providing heat stress protection via cooling tubes. The team also noted the excellent teaming during the disrobing process.

### **Preventive/Predictive Maintenance**

RCP has implemented a comprehensive PM program. Preventive and predictive maintenance is used to mitigate the chances and effects of unplanned equipment failure, thereby enhancing safe and effective operations. The PM program uses a computer database that has been designed to ensure scheduled maintenance is completed prior to equipment failure. The computerized PM system facilitates scheduling, tracking, and trending. Maintenance work instructions are included in the database and are rigorously reviewed and approved by engineering personnel depending on the relative risk involved in performing the work. Tracking of the corrective and PM program occurs monthly. RCP conducts weekly, daily, quarterly, and yearly-planning meetings that include affected managers, supervisors, team leads, and workers.

### **Emergency Preparedness and Response**

RCP has a mature emergency preparedness program. They practice scenarios (drills and exercises) and maintain a comprehensive set of response plans specific to a variety of potential scenarios. The RCP has adopted the Incident Command System as the model for managing emergency response on the site. RCP also participates in two Hanford site-wide emergency drills each year; one is typically a fire scenario and the other is a “take cover” scenario. There are approximately 13 drills per year, which cover potential hazards, such as a chemical spills, leak, fire, radiation and security. There are 13 Building Emergency Directors (BEDs) and 2 additional BEDs who cover operations outside the boundaries of RCP. As a result, RCP has Emergency Preparedness coverage 24 hours a day, 7 days a week. The site’s facilities, personnel, procedures and systems meet and/or exceed the requirements of DOE Order 151.1, *Comprehensive Emergency Management System*.

Employees interviewed were aware of emergency procedures, and effectively explained evacuation processes. RCP has several means to communicate emergency conditions including alert phones, sirens, computers, intercoms, and offsite radios. Weather emergencies are also communicated to employees. Additionally, VPP Team members were briefed on site emergency procedures, and, although escorted during the VPP review, received and read orientation booklets explaining site alarms, postings, and various RCP hazards.

RCP conducts their own monthly drills and is involved in a joint drill with DOE and other onsite contractors. These drills are to ensure the effectiveness of developed/deployed emergency and evacuation plans and contingency plans. While at the 300 Area an Emergency drill for another DOE Prime Contractor was conducted. The facility custodian kept members of this VPP Review Team, located in building 3763 during the drill, informed of necessary protective actions. Building occupants were

evacuated to the rally point and employees (including the DOE-VPP assessment team) were accounted for.

### **Radiation Protection Program**

The site has implemented the ALARA program to maintain the highest standards of ES&H protection possible. The program includes appropriate levels of self-assessment and oversight to ensure compliance with departmental requirements and ensure that established radiological work practices are being implemented. RCP ensures that personnel responsible for performing radiological work activities are appropriately trained and have the technical competence needed to implement and oversee the Radiological Control Program. Radiological Work Permits are used to ensure that radiological operations are planned and performed properly. The following are examples of good ALARA practices: extensive use of mock-ups to plan work activities; the use of AJHA processes to identify dose savings work-steps; requiring current dose field maps for the work areas; PD4 continuous dose/dose rate monitoring during work execution; use of a 300 mrem/7 day dose limit; and active involvement of first line supervisors in the dose monitoring. Data and trends are monitored to ensure adequate performance and are provided to top management on a monthly basis.

Employee interviews indicated that management places great emphasis on the protection of employees from exposure to radiological hazards. Employee awareness of RCP's ALARA program is increasing. However, employees and line management need to better informed or have improved awareness on the external dose administrative levels and limit (i.e. 500, 1000, 1500, 3000, 5000 mrem).

### **Medical Programs**

The site has integrated medical services with ES&H. The RCP project safety organization provides direct support and planning to the facilities on occupational health related processes. They also interface with HEHF physicians and staff. HEHF has a cadre of physicians, physicians' assistants, nurses, and other medical specialists. To supplement this coverage, the RCP has many trained medical responders, whose duties include providing first aid before arrival of professional medical support. Each active shift has an appropriate number.

RCP utilizes the EJTA system to match work-related hazards that require medical evaluation and essential job functions. Medical exams are then scheduled with notification to the employee and their supervisor. The Team found these combined systems to be unique, and extremely efficient. Based on a review of the EJTA records it was found that RCP was 100% up-to date in the bi-annual review of the employee's records. Physical examinations are risked based using the EJTA as a guide. This has resulted in the examination schedule being revised from previous years as in DOE Order 5480.8A.

## **Conclusion**

Hazard Prevention and Control is clearly demonstrated by RCP's injury/illness statistics. The medical program, and other initiatives, and work planning procedures are but a few examples of the focus on the prevention and control of hazards. RCP meets or exceeds the requirements for the hazard prevention and control tenet.



## VII. SAFETY AND HEALTH TRAINING

The S&H training program, procedures and overall implementation meets the DOE-VPP criteria.

### **Safety and Health Training**

Overall, the site provides effective and documented S&H training for employees, supervisors and managers. RCP-specific training is provided based on the location and nature of an employee's job assignment. Line managers are responsible for identifying required S&H training for employees. RCP utilizes an electronic system called Integrated Training Electronic Matrix to enter data for tracking purposes and to create periodic training reports. This system lists the employee's job functions and required training.

Employees are taught to recognize hazards associated with their jobs through several means. Formal Hazard Recognition Training is provided for employees during safety meetings. Special technical groups receive discipline-specific professional skills training. Operating staff personnel receive special qualifications training. Employees must go through months of classroom training on procedures and process, and successfully complete a written examination before beginning on the job training. Programs covering fire and emergency systems, hazard communications, hazardous waste operations, radiation worker training, confined space entry, industrial truck operations, electrical safety, fall protection, hoisting and rigging, crane operations and operational safety are also included in the training program, among others.

On-the-job (OJT) training is used extensively across the site to ensure that each worker obtains the required skills to perform a specific job function safely and effectively. This is achieved by following the requirements of a qualification guide or OJT checklist that documents "hands-on" training and "mock-up" training used to prepare for conducting potentially high-hazard activities. This training documents the worker's understanding and proficiency. Mentoring programs have also proven highly effective. These programs pair up experienced operators with novice operators until new employees are comfortable that they can perform their job safely without assistance.

Daily pre-job briefings are performed, and all meetings include a safety message regarding either on- or off-the-job safety designed to enhance the overall attitude about safety. RCP recently developed and implemented effective training for personnel performing employee-based safety inspections.

Informal training in the form of safety meetings and group discussions also takes place. Programs of continuing education and/or re-certification are also provided to update qualifications and maintain proficiency at regular time intervals.

**Noteworthy Practice:** RCP utilizes iPIX technology (360-degree photo) that allows them to view a particular room or facility remotely. A photo (fish eye) is downloaded to a PC and provides a virtual reality tour of a particular area. By utilizing this technology, the workforce (management and craft) are better able to conduct planning and training without the risk of radiological or other occupational exposure.

As supplemental training, line managers complete Safety Leadership Training designed to address issues related to roles and responsibilities, goals, objectives, and employee involvement. Additional training courses that are offered to managers and supervisors include:

- Accident Investigation
- Case Management/Workers Compensation
- Conduct of Operations
- Root Cause Analysis
- Injury and Illness Recordkeeping

Training instructors revise the training curriculum, with input from site employees and management. Whenever changes occur to procedures, standards, or regulations, or changes are made as a result of lessons learned or feedback from students, corresponding changes are made to the curriculum. Oral and written exams are administered and re-certification is scheduled regularly.

Based on interviews, the RCP employees were found to be very knowledgeable concerning the safety aspects of their job responsibilities. RCP has also empowered employees with Stop Work authority. This allows employees to stop a job when they feel an unsafe condition exists. This authority results in a real feeling of program ownership for employees.

## **Conclusion**

S&H training receives high priority at this site. Employees are well aware of their S&H responsibilities, and are well equipped to consider S&H in all they do. RCP meets the requirements for the S&H training tenet.

## **VIII. General Assessment**

### **Safety and Health Conditions**

The DOE-VPP Onsite Review Team made observations during walk-around activities, both as a group and individually, and conducted over 100 interviews of RCP personnel (approximately 47% of RCP employees). Significant hazards exist in these facilities to include radiological, asbestos, Beryllium, Lead and exposure to animal and bird droppings; however, procedures and processes have been developed and implemented to ensure protection of employees as they bring these facilities to closure. It was readily apparent that hazard identification, prevention and control measures were effectively implemented at the site. Site safety rules, safe work practices, and PPE usage met requirements although team members did observe one or two conditions that were in apparent violation of OSHA standards, or were not in keeping with best practices. These conditions were reported to RCP management; they indicated that these issues would receive immediate management attention. For example, there are a number of Fluor Hanford contractors working together at RCP; however, they operate under a number of different LO/TO procedures, creating confusion for the workers. Although procedural inconsistencies exist, the team noted that employees do ensure effective control of hazardous energy while working on equipment. In another instance, a scaffold (not in use) was labeled as being complete, even though the access ramp had been removed. Once this deficiency was identified to the facility, riggers responded in a timely manner and installed an access ramp. In one other example, the team notified RCP of the need to clear tripping hazards (tree stumps, dirt piles, sprinkler heads no longer in use) in a non-designated areas used as a walkway SE of 3763 leading to the south parking lot. Prior to the team's departure from the site, all obstacles were cleared and a gravel walkway was constructed.

The consensus of the team was that the site was well maintained and no major S&H issues were observed. All minor issues were immediately explained and/or resolved to the satisfaction of the Team.

### **Safety and Health Programs**

The DOE-VPP team found the applicant's program to be highly effective. The overall program is comprehensive and well communicated. According to feedback received during interviews, the site safety program has improved dramatically during the last one to two years due to efforts on the part of management working with union representatives. Employee involvement has increased dramatically during this time. The Team believes that the contractor has developed a strong S&H infrastructure and with proper guidance and funding this program is expected to continually improve.



## **IX. Team Conclusion**

The Team was able to reach a consensus opinion that the applicant has met or exceeded the technical requirements for participation in the DOE-VPP. Accordingly, the Team now forwards this report to senior management as formal documentation in support of RCP's consideration for DOE-VPP recognition.



## X. References\*

The following documents were reviewed as a source of background information and comparative data during a DOE-VPP review of the River Corridor Project. This section is entitled "References," to guide those readers who wish to consult the documents that were reviewed by the DOE-VPP Evaluation Team, along with the subject application. Although this list has been placed in a bibliographic format, it is not intended to imply that these documents are cited within the body of this report.

Minutes from the Primary ALARA Committee meeting, Wednesday, October 17, 2001.

HNF-PRO-379, Rev 8., *External Dosimetry Program*, October 5, 2001.

Surveillance of 209e CAR and Mix Rooms, AJHA Report, November 15, 2000.

Unreviewed Safety Question (USQ) Screening, FN-2001-046, October 15, 2001.

Unreviewed Safety Question (USQ) Screening, FN-2000-073, November 13, 2000.

Hanford Radiological Work Permit, FA-01-00007/W, August 20, 2001.

RCP Pre-Job Safety Meeting Form, FA-01-0007/W, October 15, 2001.

RCP Formal ALARA Review Checklist, FA-01-0007/W, August 20, 2001.

RCP Radiation Work Permit Request/Radiological Dose Assessment Form, FO-040-011: RC-0661, RC-0689, February 13, 2001.

Filter Change Out, AJHA Report, FA-01-0007/W, August 20, 2001.

Brief descriptions of Area 200 facilities – 224-T, 222-T, 231-Z, 222-N, 209-E, 242 B/BL and Purex Tunnels.

Deactivate Vacuum Compressor in Room 4, Document Number 3I-01-00266/M Modification, October 10, 2001.

Elec. Deactivate Proc. Vacuum Pump, work Package 3I-01-266, August 6, 2001.

324 Project/101022/BC30/HFFR0021 (324 piping); Work Package 3I-01-266, August 6, 2001.

Memorandum dated September 25, 2001, From W. A. Hooper to All 327 Facility Employees, Subject: Job Planning Expectations.

River Corridor Project CY 2001 324 ALARA Goals and Status, October 15, 2001.

Various Dose Reports for CY 2001 River Corridor Project by facility and work group, YTD through August 2001.

Performance Indicator Program (PIP) – River Corridor Project: March 2001 and August – September 2001.

Memorandum dated October 10, 2001, from S. M. Kelly to L. E. Simmons, Subject: Fourth Quarter Fiscal Year 2001 Performance Indicators for River Corridor Project.

Trending data for RCP, 200 ADP, 324, 327, BOP, and TEDF for past 12 months (September 2000 – August 2001). Provides direct causes (top ten) for reportable items by facility or area.

Hanford Radiological Work Permit – 300 Area/324 and 327 Radiation, Contamination, Radiation/Contamination Areas. Visual Inspections and Hands-off tours only.

Standing AJHA (ID. No. 3C-5), Rev. 1, Fuel Supply Shutdown (FSS) Project for Surveillance and Tours.

HGET VPP Survey Results for the RCP, 10/01/01.

River Corridor Project 2001 Safety Improvement Plan Implementation Progress Report, 10/02/01.

Fluor Hanford River Corridor Project Safety and Health Annual Program Evaluation, March 2001.

Voluntary Protection Program Improvement Plan Status Report, September 20, 2001

RCP Voluntary Protection Program Annual Self-Assessment, April 10, 2001.

Memo, N. C. Boyter to Direct Reports, dated 10/9/01, Subject: Performance Goals for 2002

RCP Safety and Health Policy, Rev. 0, effective May 21, 2001.

HGET VPP Survey results for the River Corridor Project, 10/3/01.

Plant Operating Procedure FO-100-001, Rev. A, Mod. 0, *Clean-Up of Biologically Contaminated Areas*.

Job Descriptions for the following positions: Director, 324 Building Deactivation Project; Operations Manager, Manager, 327 Building Deactivation Project; Director, ESH&Q;

Radiological Control First Line Supervisor; Integrated Safety Management System Coordinator; Environmental Compliance Officer Principle; Environmental Compliance Officer SR/II/I; Operations Specialist SR/III/II/I.

Employee performance appraisals for the following positions: Director, Quality Assurance Technician, Project Control Analyst, Manager, Operations Manager, Operations Manager, and Secretary.

River Corridor Project 2001 Safety Improvement Plan

HNF-PRO-078, *Subcontractor Safety and Health Management*, Revision 3, published June 20, 2001.

RCP OSHA 200 Logs

324/327 Action Plan and Status Reports

RCP Project Safety Rates, September 2001

RCP Safety and Health Policy, RCP-MD-019, Rev. 0, dated May 21, 2001.

HNF-PRO-95 Scaffolding Rev. 5, dated June 25, 2001.

FEB-FY01-01, River Corridor Project Final Report 12/4-15/2000.

Memorandum, BGF-01-002, *324 Building Second Quarter 2001 Environment, Safety and Health Report*, (Attachment 9, completed checklists)

Record Copies:

- 327 Building – five sample PM lists
- ADP 200 Bldg. – four surveillance records
- ADP 300 Area FS-NOP-16-003, Rev. 3 Surveillance
- ADP 300 Area – SI-FSS-009, Rev. 5

RCP-MD-009, 10/24/2000, 2001 Safety Improvement Plan (SIP)

HNF-PRO-077 Rev. 2, 2/3/1999, *Reporting, Investigating, Managing Events*.

RCP-PRO-006, 5/22/2001, *Notification, Investigation and Case Management*.

S&H Professional examples of event reports and statistics.

S&H Professional examples of Occupational Injury/Illness events investigated.

S&H Professional examples of Accident, Incident, and Hazard Correction Reports and follow-up actions.

AJHA 31-619, Room 317 Service Tunnel, Steam Support System.

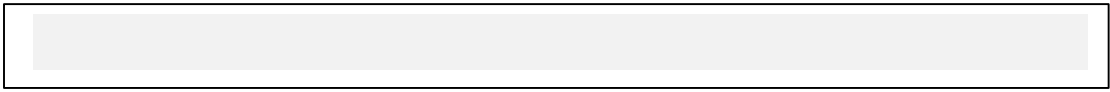
AJHA 31-466, CHA/Trucklock welding

HNF-IP-1264, Section 1.2, Rev. 2, dated 12/22/1999, *Hazard Communication Program*

HNF-IP-1264, Section 6.5, Rev. 2, dated 1/31/2001, *EPCRA Section 311, 312, and 313,*







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